APPENDIX D

PUBLIC COMMENTS AND DOE RESPONSES

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APPENDIX D. PUBLIC COMMENTS AND DOE RESPONSES

In November 2000, the Department of Energy (DOE) published the *Savannah River Site High-Level Waste Tank Closure Draft Environmental Impact Statement (DOE/EIS-0303D)* and invited public comment on the document. DOE held public hearings on the Draft Environmental Impact Statement (EIS) in North Augusta and Columbia, South Carolina, respectively, on January 9 and 11, 2001. The public comment period ended on January 23, 2001. DOE received written comments from 18 individuals and organizations and 8 people who spoke at the public hearings. DOE considered all comments in preparing this Final EIS.

This appendix provides the comments received and DOE's responses. Written comments and their responses are summarized in D.1. In Section D.2, each written comment letter is reproduced, with individual comments, questions, and suggestions labeled; responses to them are provided on the pages that follow each comment letter. If a comment prompted DOE to modify the EIS, the response describes the change and identifies its location in the Final EIS.

In Section D.3, comments made during the public hearings are summarized, followed by DOE's responses. Transcripts from the hearings are available at the DOE public reading rooms:

DOE Freedom of Information Reading Room
Forrestal Building, Room 1E-190
1000 Independence Ave., SW
Washington, DC 20585
Phone: 202-586-6020

and DOE Public Document Room
University of South Carolina, Aiken Campus
University Library, 2nd Floor
171 University Pkwy.
Aiken, SC 29801
Phone: 803-648-6851

D.1 Summary of Comments

Several of the major points made by commenters are summarized below, together with DOE's responses. More detailed responses are provided in Sections D.2 and D.3

Alternatives

Several comments questioned DOE's choice of alternatives for analysis or suggested additional alternatives that DOE should have considered. Specific topics included requests for clarification of the intent of the No Action Alternative, consideration of offsite disposal of tanks under the Clean and Remove Tanks Alternative, and a suggestion that DOE should cut up some of the tanks and place the components inside other intact tanks before grouting them. Several comments expressed concern or requested clarification about specific elements of the alternatives, including how transfer lines would be treated under the various alternatives and whether removed tank components would be disposed in the Savannah River Site (SRS) E-Area Vaults under the Clean and Remove Tanks Alternative.

Response:

DOE finds that the suggested new and modified alternatives either are not reasonable or were effectively addressed by the analysis presented in the EIS. Therefore, DOE did not change the alternatives considered in the EIS (other than modifying the Clean and Stabilize Tanks Alternative). However, clarifying information was added to the EIS as a result of several of these comments, as described in the responses to individual comments.

Use of Oxalic Acid

Several comments questioned the use of oxalic acid in cleaning tanks: whether other products could be used to remove residual material in the tanks, and whether DOE expects to use oxalic

acid in view of technical concerns, particularly about the potential for nuclear criticality. Comments pointed out apparent contradictions between statements that oxalic acid cleaning would be used in the Clean and Stabilize Tanks Alternative and other statements that oxalic acid cleaning would not be practicable in the context of the Clean and Remove Tanks Alternative.

Response:

DOE revised the EIS to clarify DOE's position regarding the use of oxalic acid. Following bulk waste removal, DOE would clean the tanks, if necessary, to meet the performance objectives contained in the General Closure Plan and the tank-specific Closure Module. In accordance with the General Closure Plan, the need for and the extent of any tank cleaning would be determined based on the analysis presented in the tank-specific Closure Module. Concern about potential criticality would not preclude using oxalic acid for tank cleaning. However, a thorough, tank-specific evaluation for criticality would need to be done before using oxalic acid in any tank. The evaluation may result in the identification of additional tank-specific controls to ensure prevention of criticality. As discussed in the EIS, DOE identified oxalic acid as the preferred chemical cleaning agent after studying numerous other potential cleaning agents. Concerns about the effect of oxalic acid on the quality of the Defense Waste Processing Facility (DWPF) waste feed would be resolved by special handling of batches of waste feed that contained oxalates as a result of tank cleaning activities.

Cleaning of Tank Annulus

Several comments asked about the status of and plans for efforts to remove waste found in the annuli of some tanks, including the status of waste removal from the annulus of Tank 16.

Response:

In Chapter 2, a new paragraph was added on cleaning of the secondary containment, stating that waste would most likely be removed from the annulus using water and/or steam sprays, possibly combined with a chemical cleaning agent, such as oxalic acid. The Summary and Appendix A have been revised to clarify the status of waste removal from the Tank 16 annulus, specifically to state that some waste has been removed from the annulus, although some waste still remains.

Residual Waste

Several comments requested information on the residual waste inventories assumed for individual tanks or asked how DOE would measure or estimate the quantity and characteristics of residual waste remaining after tank cleaning is complete. Several comments requested additional discussion of the process by which the DOE determines that residual waste is "incidental to reprocessing."

Response:

In response to these comments, a table listing the assumed volume of residual waste if the tanks are cleaned remaining in each closed high-level waste (HLW) tank has been added to Appendix C. These volume estimates are based on previous experience with cleaning of Tanks 16, 17, and 20 and on judgments of the effectiveness of the cleaning method. Also, additional information on the approach used to estimate residual waste characteristics has been provided in Appendix A. For modeling purposes, the EIS assumes that the composition of the residual waste would be approximately the same as the sludge currently in the tanks. Before each tank is closed, DOE will collect and analyze samples of the residual waste remaining after tank closure and would conduct camera inspections to obtain visual evidence of the volume of residual waste in that tank. DOE has expanded the discussion of the three criteria for determining that waste is incidental to reprocessing, as specified in DOE Manual 435.1-1, Radioactive Waste Management.

Institutional Control and Future Land Use

Several questions addressed institutional control and future land use. Commenters said that DOE should not assume that institutional control

would be retained for the entire duration of modeling analysis or that the land around the Tank Farms would remain in commercial/industrial use. Some expressed concern about whether the selected alternative for HLW tanks closure would restrict potential future land use.

Response:

No changes were made to the EIS as a result of these comments. DOE's *Savannah River Site Future Use Plan* calls for the land around the F and H Areas (i.e., between Upper Three Runs and Fourmile Branch) to remain in industrial use indefinitely. This future use designation would not be affected by the choice of a tank closure alternative. Although DOE does not envision relinquishing control of the area, it does recognize that there is uncertainty in projecting future land use and effectiveness of institutional controls. Therefore, in this EIS, DOE assumes direct physical control in the General Separations Area only for the next 100 years from the date of tank closure. In addition to reporting estimated human health impacts based at a regulatory point of compliance that is at the seepline (about a mile from the tank farms) DOE has provided estimates of human health implications of doses that would be received by persons obtaining drinking water from a well directly adjacent to the boundary of the tank farm.

Regulatory Standard and Point of Compliance

Several comments questioned the regulatory point of compliance (i.e., the seepline) or the application of the U.S. Environmental Protection Agency (EPA) drinking water standard of 4 mrem/year at that location. One viewpoint was that the seepline should not be used as the point of compliance unless institutional controls prevent groundwater use at locations closer to the tank farm. Another viewpoint was that the seepline point of compliance is overly conservative because people would obtain water from the nearby stream rather than at the seepline. Several commenters stated that the 4 mrem/year limit is overly conservative and suggested adopting a less stringent standard. Another concern expressed was that a more stringent standard might be applied under a future Resource Conservation and Recovery Act (RCRA)/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulatory process.

Response:

The performance objective of 4 mrem/year at the seepline was established by South Carolina Department of Health and Environmental Control (SCDHEC), after discussions with DOE and EPA Region 4 and following an evaluation of all applicable or relevant and appropriate requirements.

EIS Summary

Several comments specifically addressed the EIS Summary, often requesting clarification on topics that were covered in the EIS text or appendices, but not in the EIS Summary. Some commenters suggested that the Summary should be made an integral part of the EIS instead of being published as a separate volume.

Response:

In response to several comments, DOE incorporated additional information from the EIS into the EIS Summary. As allowed and encouraged in the Council on Environmental Quality National Environmental Policy Act (NEPA) implementing regulations (40 Code of Federal Regulations (CFR) 1500.4), DOE publishes the Summary separately as a service to readers, many of whom only read the Summary.

D.2 Comment Letters and DOE Responses

In the following section, DOE has reproduced the written comments received and provides a response to each. Table D-1 lists the comment letters and provides the letter numbers and commenter names.

Table D-1. Written Comments on the SRS High-Level Waste Tank Closure Draft EIS.

Comment Source Number*	Commenter	Page Number
L-1	Mr. Wade Waters	D-5
L-2	Mr. William F. Lawless	D-11
L-3	Mr. R. P. Borsody	D-17
L-4	Mr. Heinz J. Mueller, U.S. Environmental Protection Agency	D-25
L-5	Mr. Peter French	D-34
L-6	Mr. Thomas H. Essig, U.S. Nuclear Regulatory Commission	D-37
L-7	Mr. W. Lee Poe	D-43
L-8	Mr. Jim Hardeman, Georgia Department of Natural Resources	D-65
L-9	Mr. Frank Watters	D-68
L-10	Mr. Ernest S. Chaput	D-70
L-11	Mr. Kenneth W. Holt, Centers for Disease Control and Prevention	D-73
L-12	Mr. Andreas Mager, Jr., National Marine Fisheries Service	D-78
L-13	Mr. Cliff Blackman, Georgia Department of Natural Resources	D-81
L-14	Mr. Cliff Blackman, Georgia Department of Natural Resources	D-85
L-15	Mr. Cliff Blackman, Georgia Department of Natural Resources	D-89
L-16	Mr. James H. Lee, U.S. Department of the Interior	D-92
L-17	Mr. Eric G. Hawk, National Marine Fisheries Service	D-94
L-18	Ms. Angela Stoner, South Carolina State Budget and Control Board	D-97

*Unique codes were given to each of the letters received. Individual comments are coded L-1-1, etc.

Rec.

FEB 14 2001

February 8, 2001

Andrew R. Grainger, NEPA Compliance Officer
U. S. Department of Energy
Savannah River Operations Office
Building 742A, Room 183
Aiken, South Carolina 29802

Subject: **Comments on the November 2000 Savannah River Site High-Level Waste Tank Closure Draft Environmental Impact Statement**

Dear Mr. Grainger:

At the request of the Savannah River Site (SRS) Citizens Advisory Board (CAB) Waste Management Committee, the Salt Team Focus Group (FG) has been asked to review and comment on the November 2000 High-Level Waste (HLW) Draft Environmental Impact Statement (DEIS). We are aware that the official public comment period ends on January 23, 2001 but DOE had stated during public meetings that comments received after this date would be, to the extent practicable, reviewed and addressed.

The primary point the Salt Team FG wishes to stress is the need to maintain the current HLW Tank closure schedule. Any deviation in the Federal Facility Agreement closure schedule is considered unacceptable. In addition, we offer the following comments for your review and consideration: L-1-1

1. Based upon a review of the data in this DEIS, the most logical proposed action is to Clean and Stabilize the Tanks. This action provides the best protection to human health and the environment at an acceptable cost. The Salt Team FG agrees with the tank stabilization preferred option to fill with grout and believes this alternative should be the action selected in the final Record of Decision. The Salt Team FG sees the other alternatives as unacceptable. L-1-2

2. The Salt Team FG believes the performance objective of 4 mrem/year at a seepline is overly conservative and not realistic. The Salt Team FG can not see how anyone could realistically drink from the seepline. A more realistic point of compliance would be the centerline of the stream receiving surface runoff from the seepline. The Salt Team FG requests a modification to the proposed point of compliance. Furthermore, consistent with DOE Order 435.1, the projected dose attributable to any single source, practice, or activity should be some fraction less than the applicable overall dose limit (e.g. 100 mrem/year criteria stated in the order DOE 5400.5). L-1-3

Feb 14 01 09:27a Linda and Wade Waters 912-748-9532 p.1

Andrew R. Grainger, NEPA Compliance Officer
U. S. Department of Energy
Page 2

To provide a realistic protection of human health and the environment, the Salt Team FG believes the composite analysis limit of 30 mrem/year should be used at the centerline of the stream receiving water from the seepline. This limit is normally applied at the site boundary but by using it at a location far within the site boundary a more than adequate level of protection will be provided. In addition, a greater level of protection will be utilized as the SRS begins to use institutional controls as part of its long-term stewardship program. By using this higher, but very protective, limit, tank closures will meet the performance objective at considerable cost savings to DOE and the taxpayer. L-1-4

3. One of the most important aspects of modeling the long-term closure scenarios is an accurate radioactive material source term. The DEIS appears to use process knowledge and reliance on past performance activities to assume a source term. No actual sampling data is used. The Salt Team FG believes representative sampling should be performed to verify the predicted levels and the approach should be documented in the DEIS. L-1-5

4. As individual private citizens, several members of the Salt Team FG submitted comments on the DEIS. Many of these comments address the Summary, which is a separate publication from the DEIS. The Salt Team FG believes that the Summary is considered to be part of the DEIS and merely pulls from specific sections of the DEIS to make a more condense version for the general public to read. However, neither the Foreword nor the Table Of Contents specifically address the Summary as being part of the DEIS. The Salt Team FG suggests that the Summary be listed and incorporated as an integral part of the DEIS. L-1-6

5. In the DEIS, DOE estimates that oxalic acid cleaning could be required on as many as three-quarters of the tanks to meet performance objectives and DOE plans to use the acid wash as part of the Clean and Stabilize Alternative. However, under the Clean and Remove Alternative, oxalic acid cleaning is considered not to be "technically and economically practical" because of critically safety concerns, potential interference with DWPF, and high cost. The Salt Team FG believes that safety and process uncertainties should be resolved and the results included in the DEIS. Additional discussion is needed to clarify the conflicts between using oxalic acid cleaning in one case and then discounting it in another. L-1-7

6. The Salt Team FG believes further explanation is required to address potential generation of HLW from new missions at SRS. Currently, the DEIS has a blanket statement suggesting that new missions targeted for SRS will not add HLW to the current SRS inventory. DOE has previously identified new waste streams resulting from the Pit Disassembly & Conversion Facility (PDCF), the MOX facility (including a liquid "polishing" process), and SNF treatment and storage facility. All of these waste streams have the potential for including high level L-1-8

liquid waste. The final EIS should discuss this apparent inconsistency. If some high level liquid wastes are expected to be received by the SRS tank farms from these new facilities, the amounts and constituents should be identified in the final EIS. L-1-8

7. Under the long-term closure modeling, one aspect not discussed nor explored is the potential for the No Action Alternative to release contaminated media from the filling and overflowing of the failed tanks from rainfall events. The DEIS only assumes that rainfall will fill the tanks and infiltrate to the groundwater, which understates the potential health and environmental impacts from this scenario. The Salt Team FG suggest that the potential for the failed tanks to release contaminated media to surface run-off be addressed. L-1-9

8. During its review, the Salt Team FG noted several inconsistencies between the body of the DEIS and the Appendices. Some of these were specifically addressed in individual comments from the FG members. The Salt Team FG requests the inconsistencies be corrected and a thorough review be performed to removed any errors. One such error noted was the description of HLW as a "highly corrosive and radioactive waste" in the Summary and in the DEIS. Highly radioactive is correct but highly corrosive is not and the word should be deleted. L-1-10

The Salt Team FG requests clarification on these comments whether they are incorporated in the High-Level Waste Draft Environmental Impact Statement or not. Thank you for the opportunity to offer our comments.

Sincerely,

Wade Waters

Mr. Wade Waters, Chair
Waste Management Committee
308 Pinewood Drive
Pooler, GA 31322

Response to comment L-1-1 and L-1-2: Comment noted.

Response to comment L-1-3: The comment is correct in that it is not probable that someone would drink 2 liters per day from the seepline; rather, they would drink from the free-flowing waters of the creek. However, this conservative point of compliance and the 4 mrem/year standard were established by the State regulators and DOE does not have a need to change the point of compliance. Use of the 4 mrem/year performance objective also helps ensure that the 100 mrem/year all-pathways dose limit would be met. Also see response to comment L-5-4 (first paragraph).

Response to comment L-1-4: See response to comment L-1-3.

Response to comment L-1-5: The inventory that is needed for modeling is the inventory of the residual left after waste removal. For tanks that have not undergone waste removal, this residual does not yet exist. If spray water washing was used, the residual would be lower in soluble components than the salt solution because water washing removes most soluble components, but would be higher in insoluble components. For the purposes of the modeling in the EIS, it was assumed that the composition of the residual would be approximately the same as the sludge currently in the tanks, which DOE believes is conservative. Section A.4.3 has been revised to provide more information on residual waste sampling/characterization. "To determine the characteristics of the residual material that would remain in the closed HLW tanks, DOE obtained and analyzed sludge samples from waste tanks containing each of the major waste streams that have gone to the tank farms. These samples were washed in the laboratory, approximating what might remain after waste removal, and the concentrations of various components in the washed sludge were measured. DOE used the results of these samples in developing the process knowledge database that was used for the modeling described in Appendix C. Samples of the actual residuals that would remain in each tank after waste removal would be collected and analyzed after the completion of waste removal in that tank."

Response to comment L-1-6: The Foreword and the Table of Contents in the Final EIS indicate that the Summary is published as a separate volume. DOE publishes the Summary separately as a service to readers, many of whom only read the Summary. Publication of an EIS in several volumes is a common practice consistent with the Council on Environmental Quality guidelines on the content of an EIS.

Response to comment L-1-7: See response to comment L-4-23.

Response to comment L-1-8: DOE believes that the facilities listed in the last paragraph of Section S-3 on page S-13 of the Draft EIS would not substantially affect the current SRS HLW inventory. This EIS considers alternatives for closure of empty HLW tanks; therefore, impacts of new HLW generation are not within the scope of this document.

The HLW program utilizes a "High-Level Waste System Plan" to help plan and manage the operation of the tank farms, DWPF, and associated systems. This plan is updated annually and whenever there are major perturbations to the system. Included in this plan are the known influents to the HLW system. Potential impacts from new missions will be included in this planning document.

Response to comment L-1-9: As discussed in Section C.1.1, the performance assessment modeling presented in the EIS assumes that, at some point in the future, degradation associated with the aging of the tanks would destroy the tanks. The contaminants are then assumed to reside at the bottom of a hole equal to the depth of the tank (generally 30 to 40 feet). Because of the lack of structural support, the tanks and concrete basemat are assumed to fail completely at 100 years, exposing the contaminated media to rain-fall with subsequent infiltration to groundwater. At 100 years, the tanks and concrete basemat are assumed to have the same hydraulic conductivity and infiltration rate as the surrounding soil. DOE does not believe the

tanks would fill with rainwater and overflow, releasing contaminants to the land surface.

However, if the top of the tanks fail before the base of the tanks fail or before the concrete basemats disintegrate, water from precipitation could leak into the tanks and cause them to overflow at the ground surface. In response to similar public comments on the analysis of the No Action Alternative in the Salt Processing Alternatives Supplemental EIS (DOE/EIS-0082-S2), DOE modeled the potential impacts of a scenario in which the tanks overflow and spill their contents onto the ground surface, from which contaminants flow overland to nearby streams. The potential consequences of this type of event would be smaller for the No Action Alternative in this EIS than for the No Action Alternative in the Salt Processing SEIS, because the residual sludge that would remain in the tanks following bulk waste removal is largely insoluble, in contrast to the salt solution, which would contain a large inventory of dissolved radioactivity. It is unlikely that rainwater overflowing from the tanks could transport appreciable quantities of radioactivity from the sludge phase.

Nevertheless, the scenario addressed in the Salt Processing Alternatives Supplemental EIS places a conservative upper bound on the potential consequences of this scenario to persons who might consume water from SRS streams for the No Action Alternative considered in this EIS. To conservatively estimate the consequences of this scenario for water users, DOE modeled the eventual release of the salt waste to surface water at SRS, assuming no loss of contaminants during overland flow. This modeling was performed for both onsite streams that flow near the tank farm areas (Fourmile Branch and Upper Three Runs), as well as the Savannah River, into which these streams flow. The modeling showed that an individual consuming 2 liters per day of water from Fourmile Branch would receive a dose of 640 millirem per year. This dose is more than 160 times the drinking water regulatory limit of 4 millirem per year and would result in an increased probability of contracting a latent cancer fatality from a 70-year lifetime exposure of 0.022. The probability of contracting a latent cancer fatality under the No Action Alternative would be about 13,000 times greater than that of any of the action alternatives. Similarly, an individual consuming the same amount of water from Upper Three Runs would receive a dose of 295 millirem per year, and an individual consuming the same amount of water from the Savannah River would receive a dose of 14.5 millirem per year. These doses also exceed the drinking water limit and would incrementally increase the probability of contracting a latent cancer fatality from a 70-year lifetime exposure by 0.01 and 5.1×10^{-4}, respectively.

For the No Action Alternative in the Final Salt Processing Alternatives SEIS, DOE also considered potential external radiation exposure from the tank overflow scenario described above for a resident in the tank farm area, conservatively assuming that all contamination is deposited on the ground surface rather than flowing to streams or entering the underlying soil. The modeling showed that an individual living in the tank farm would receive an external direct gamma irradiation) dose of about 2,320 rem in the first year following the event, which would result in a prompt fatality.

Response to comment L-1-10: The word "corrosive" has been deleted in Sections S.1 and 1.1.

1

Rec. JAN 25 2001

PAINE COLLEGE

Division of Natural Sciences and Mathematics 1235 Fifteenth Street Augusta, Georgia 30901-3182 (706) 821-8335

January 22, 2001

Andrew R. Grainger, NEPA Compliance Officer
U. S. Department of Energy
Savannah River Operations Office
Building 742A, Room 183
Aiken, South Carolina 29802

Subject: Comments on the November 2000 Savannah River Site High-Level Waste Tank Closure Draft Environmental Impact Statement

Dear Mr. Grainger:

I would like to take this opportunity to offer my comments on the November 2000 High-Level Waste Draft Environmental Impact Statement (DEIS). As a citizen living near the Savannah River Site (SRS), I have been active in monitoring the waste management activities of SRS and in past years, I have volunteered my time on the Savannah River Site (SRS) Citizens Advisory Board (CAB). Currently, I am a volunteer member of several Focus Groups formed by the SRS CAB.

One of those groups is the Salt Team Focus Group (FG), which has been tasked to review and comment on the DEIS. Comments from the FG will not be available until after the official period ends. DOE assured this group that its comments would be reviewed and addressed to the extent possible if they are received after January 23, 2001; that has encouraged me to provide my comments as a private citizen now, and again later when the group submits its formal comments. I have reviewed the DEIS and I attended the public meeting held in North Augusta, South Carolina on January 9, 2001. My general comments and specific comments are provided as an attachment to this letter.

First, I do not want to see additional delays in the publication of a Final EIS or the Record of Decision. I believe that the HLW Tanks need to be closed to meet the current schedule as agreed to by the three agencies (DOE, EPA, and South Carolina-DHEC) in the Federal Facilities Agreement (FFA) for the Savannah River Site. However, I offer the following general comments and attached specific comments to provide clarification and identify deficiencies:

1. Where relevant, correlating the text with CAB motions will convey to the average reader that some of the ideas in the DEIS have already been reviewed by stakeholders. It will provide some level of assurance to readers unfamiliar with SRS and tank closure that

L-2-1

A College of The United Methodist Church and the Christian Methodist Episcopal Church

citizens with a stake in the outcome for tank closure have reviewed many of the issues underlying this document. L-2-1

2. Considering the performance time span of 10,000 years, the closure criteria of 4 millirem is overly conservative. Given a background of around 300 mrem, the 4 mrem standard amounts to 4/300 or 1/75th of background. The DEIS should make this point in the very beginning and throughout the DEIS. Comparisons with common radioactive doses should be made so that the reader understands the conservative nature of this standard. L-2-2

3. The DEIS should include a fuller discussion of the importance to stakeholders of the resolution of the issue of tank closure. As it stands, tank closure comes across as a technical benefit with little or no health or environmental consequences. But tank closure is much more. Closing the tanks establishes the social and political precedent of closing the fuel cycle from the point of view of SRS stakeholders. This point was made in the DEIS, but it was buried in the text and not very clear; it should be placed front and center. From my perspective as a professional engineer, the tank closures at SRS have served as an example of an excellent engineering practice to all sites across the DOE complex. L-2-3

4. The No Action alternative as discussed during the January 9, 2001 Public Meeting would lead to tank collapse, subsidence, and inflows of water and animal intrusion. This scenario could potentially result in the widespread dispersion of radioactivity across the surface. L-2-4

5. The No Action alternative as discussed during the January 9, 2001 Public Meeting assumes nearly complete removal of radioactive high-level wastes from the tanks. Has a safety analysis considered whether this alternative may leave uncovered sufficient waste residues in the annuli to generate hydrogen gas and pose a dispersion hazard? L-2-5

I respectfully request that DOE consider these general comments and the attached specific comments in the final High-Level Waste Draft Environmental Impact Statement. Thank you for the opportunity to offer my comments.

Sincerely,

William F. Lawless, Ph.D., P.E.
Technical Lead, CIF Focus Group
Paine College, Departments of Mathematics and Psychology
Augusta, GA 30901-3182

3

Attachment

cc: Salt Team Focus Group

HIGH-LEVEL WASTE DRAFT ENVIRONMENTAL IMPACT STATEMENT
SPECIFIC COMMENTS

HLW Tank Closure DEIS-Summary

1. Page S-8: If it is the case, add no known leaks have occurred in the Type III tanks. L-2-6
2. Page S-9: The goal "to remove as much waste as can reasonably be removed" seems insufficiently rigorous. It would be better to add "consistent with the approved closure criteria in the General Closure Plan". Also, on page S-10, last paragraph, to the phrase "constitutes the limit of what is economically and technically practicable for waste removal", add "consistent with the approved closure criteria in the General Closure Plan". L-2-7
3. Page S-10: Please provide estimated curies per gallon for the gallons to be left as residue. L-2-8
4. Page S-12, last paragraph: Failed tanks could lead to surface subsidence, which would open the tanks to water, plant, and animal intrusion. L-2-9
5. Page S-16: The likelihood of the State of SC allowing removed HLW tanks to buried in the waste management facility seems unlikely. A more likely arrangement would be to transport the removed tanks for disposal to an offsite facility, which would substantially increase the costs of the removal alternative, exposure to workers and the public, and increase the possibility of transportation accidents. L-2-10
6. Page S-18: The assumption of zero cancer fatalities for the No Action alternative appears to assume that discontinued tanks containing uncovered residue wastes, especially in their annuli, will not generate hydrogen gas. L-2-11
7. Table S-2: In addition to the utility and energy costs, please provide the convenience of listing the average and total costs for each option; e.g., on page S-21, the total costs for the removal alternative is stated in the text, but the others are not. L-2-12
8. Figure S-7: To assist the reader in being able to quickly see when the closure criteria is estimated to become exceeded and by how much, please draw a horizontal line in the figure at 4 mrem to represent the closure criteria. L-2-13
9. Page S-25: It would help readers to know that stakeholders reviewed the composite analyses method and the zoning processes (i.e., cite the relevant CAB motions). L-2-14

HLW Tank Closure DEIS Text

1. Page D-5, Figure A-5: The possibility of reusing HLW tanks formerly considered to be retired should be noted. L-2-15
2. Figure A-5: The illustration of the tanks that have already been closed (Numbers 20 and 17) is not clear from the figure. Maybe drawing a line through them or separating them from the pack would be clearer. L-2-16
3. Page 1-7: The discussion states that much of the leaked waste was removed from the annulus of Tank 16; however, page A-5 states that waste in the annulus of Tank 16 has not been removed. If page 1-7 is correct, the discrepancy on page A-5 needs to be corrected. L-2-17

4

4. Page 1-10: It might help for the reader to know that the CAB conducted a cursory ISPR (Ratib Karam from ERDA visited the site for the closure of Tank 17; and Tom Pigford reviewed the Closure Plan). L-2-18

5. Page 1-11: It might be helpful for the reader to know that the CAB reviewed DOE Order 435.1 while it was in draft. L-2-19

6. Page 1-13: Section 1.4.3 would be an ideal location to review the CAB's participation in the tank closure process. L-2-20

7. Page A-21: While helpful, Figure A-7 seems unclear. Describe the different elements inside of the tanks (viz., currently, the tanks are divided into four unnamed sections; contrast this figure with the clearer Figure 2.1-1). L-2-21

8. Table 2-5, p. 2-25: the percent of MCL is confusing. It would help the reader to give an example from the data presented; e.g., 320 under Cr means 320%, or 3.2 times greater than the MCL. L-2-22

9. Table 3.3-5 uses Becquerels in a footnote and curies in the table. It might be more helpful to include becquerels and curies in the relevant tables. Conversions should be provided. Also, other tables use rem instead of sieverts. Both should be provided along with convenient conversions. L-2-23

Response to comment L-2-1: Chapter 1 of the EIS (Section 1.4.3) has been revised to present a more comprehensive discussion of stakeholder involvement in the SRS High-Level Waste Tank Closure Program. The following text has been added: "The public and the State of South Carolina have been and continue to be involved in the closure of HLW facilities at the SRS. Additional public meetings were conducted in North Augusta, South Carolina (January 9, 2001) and Columbia, South Carolina (January 11, 2001) to present the Draft EIS for public comments.

The Citizens Advisory Board (CAB) for SRS is very interested in the closure of HLW facilities. As such, the CAB has been briefed quarterly and the CAB Waste Management Committee is briefed bi-monthly on closure activities. The CAB has issued several recommendations related to HLW tank closure. DOE has carefully reviewed these recommendations in establishing and implementing the SRS HLW tank closure program, and will continue to do so in the future."

As an example, the SRS CAB Recommendation (January 23, 2001) regarding annulus cleaning stated the Board's concern that SRS appears to be placing a low priority on annulus cleaning. DOE responded to this recommendation (February 8, 2001) stating, "the Savannah River Operations Office considers the issue of removal of waste from the tank annulus to be important to the long-term success of the HLW Tank Closure Program." The response further states, "However, the development of methods for removal of waste from the tank annulus as part of the longer term effort to close Tank 14 reflects a balanced and responsive approach to solving this important challenge." This conclusion is valid for closure of all tanks that have annuli.

Response to comment L-2-2: Section 3.8.1 explains background radiation exposure and Section 4.2.5 presents a comparison of the calculated radiation doses to the average U.S. background radiation exposure.

Response to comment L-2-3: Comment noted. Comparing the impacts of no action to those with the action alternatives shows the beneficial consequences.

Response to comment L-2-4: The Summary (Section S.4) and Chapter 1 (Section 1.2) have been modified to acknowledge the possibility of intrusion and releases from failed tanks in the long term. The long-term impacts of the No Action Alternative are discussed in Section 4.2 of the EIS, and the modeling basis for the results is presented in Appendix C (Section C.1.1). For purposes of the analysis DOE assumed that structural failure of the tanks and subsidence would not result in atmospheric releases, because of the depth of the tanks below grade and the likelihood that water and debris in the tanks would tend to reduce the potential for atmospheric releases. The groundwater release pathway is dominant in the calculation of doses, which are described in Section 4.2. See response to L-1-9 regarding surface dispersion of radioactivity under the no action alternative.

Response to comment L-2-5: Because DOE has not selected an alternative for tank closure at this time, the safety analysis the commenter suggests has not been performed. However, current safety analyses and surveillance programs account for the presence of waste in some of the tank annuli. Following selection of an alternative, and approval of a tank specific closure module (in the case of all alternatives except no action), DOE would perform the appropriate safety analyses based on the selected closure method.

In-tank generation of hydrogen may be an issue in the highly concentrated radioactive waste contained in the tanks prior to bulk waste removal; however, that condition is not in the scope of this EIS. The impacts from each alternative are evaluated assuming bulk removal has already been done. Under these conditions, the amount of hydrogen that could be generated internally would be insufficient to support combustion.

Response to comment L-2-6: At the end of the last paragraph before S.2.4, the text, "No leaks have been observed in the Type III tanks" has been added.

Response to comment L-2-7: The text boxes in Section S.2.4 of the Summary and Section 1.1.4.2 of the EIS have been revised to include all of waste incidental to reprocessing criteria. Section S.2.4 of the Summary and Section 2.1 of the EIS have been revised to more completely address meeting DOE Order 435.1 requirements relative to the waste incidental to reprocessing determination - specifically additional discussion of economic and technical considerations for removal of waste. The section labeled "Performance Objective" does refer to the overall performance standard in the General Closure Plan, and states that closure of individual tanks must occur in such a way that overall performance objectives can be met.

Response to comment L-2-8: Appendix C has been revised to present a new table, as Table C.3.1-2, which lists the assumed volume of residual waste if the tanks are cleaned remaining in each closed HLW tank. Table C.3.1-1 has been revised to present the average concentration in each tank farm for each listed radionuclide (curies/gallon).

Response to comment L-2-9: See response to comment L-2-4.

Response to comment L-2-10: DOE would follow the permitting procedures of the SCDHEC for disposal of the removed HLW tanks if the Clean and Remove Tanks Alternative were selected and implemented. The residual material would meet the criteria for low level waste and would be managed as such. It is DOE's practice that LLW generated at SRS is disposed of at SRS. Therefore, transportation and disposal of this material at an offsite location was not considered to be a reasonable alternative. DOE acknowledges the commenter's conclusions regarding increased cost, exposure to workers, and increased risk of transportation accidents if removed HLW tanks were transported offsite for disposal.

Response to comment L-2-11: Under the No Action Alternative during the short term DOE would continue to manage the tank farms but not close any tanks. This means that normal operations would be conducted in accordance with approved safety analyses. During this period of time the tanks would not be abandoned but actively managed to ensure worker and public health and safety. See response to comment L-7-82 regarding hydrogen generation.

Response to comment L-2-12: Further information on the costs of each alternative (that presented in Section 2.3 of the Final EIS) has been added to the Summary in Section S.8.1.

Response to comment L-2-13: Both figures S-7 and 4.2.2-1 have been modified accordingly.

Response to comment L-2-14, L-2-18, L-2-19, and L-2-20: See response to L-2-1.

Response to comment L-2-15: Appendix E, Description of the Savannah River Site High-Level Waste Tank Farms, which is for Official Use Only, contains detailed information about the location, physical dimensions, and content of the HLW tank systems. Due to increased concerns about operational security following the events of September 11, 2001, Appendix E will be made available upon request to those who have a need to review this information. Consistent with the direction of the Attorney General of the United States, this information is not releasable under the Freedom of Information Act. Figure E-4 (which was Figure A-5 in the Draft EIS) has been modified to account for the future storage use of some Type I tanks.

Response to comment L-2-16: Figure E-4 (which was Figure A-5 in the Draft EIS) has been revised to show an "X" through Tanks 17 and 20.

Response to comment L-2-17: Section 1.1.3 is correct. Sections A.3.1 and E.2, third paragraph, second-to-last line, have been revised to read, "DOE removed some waste from the annulus at that time, but some dry waste still remains in the annulus."

Response to comment L-2-21: Figure A-6 is provided to present an environmental restoration concept with backfill material and a RCRA/CERCLA type cap shown over the closed tanks. See Figure A-5, Section A.4.4 (which is the same base figure as Figure 2.1-1) for more detail.

Response to comment L-2-22: DOE believes that the existing note at the bottom of the table provides sufficient guidance for interpreting "percent of MCL." There are many tables in the EIS that contain a similar construct.

Response to comment L-2-23: The purpose of footnote "B" was to provide a conversion from curies to becquerels. DOE believes that using dual sets of units would make this table (and other tables in the EIS) less reader-friendly and understandable.

R.P. Borsody
SENIOR CONSULTANT

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Rec.
JAN 16 2001

To: Andrew R. Grainger - NEPA Compliance Officer
Savannah River Site, Building 742-A, Room 185
Aiken, SC 29802

1/10/2001

Sir:

After lightly reading the High-Level Waste Tank Closure (F + H Areas) Draft Environmental Impact Statement over a series of weeks, I was impressed by the depth and presentation of the information. However, I was left with questions, comments, and suggestions, some of which are contained below. I was going to follow the order of the text sent, but quickly found many areas overlapped if using that format, therefore, I will start off with the most deeply related data and then proceed to broader, less focused (on this one work) info.

A - TANK OPERATIONS

I must agree with the basic plans for tank closure by filling the emptied tanks with a grout-mixture, however, several points relating to this procedure deserve some consideration. First and foremost, filling the tanks with grout limits future activities should a new plan of action be decided as preferable to the current options. Any new process would find the tanks themselves to be a nearly insurmountable problem as any method to handle the waste would require the structures be cut up which would spread the now-solid masses of contaminated materials into the air, land, and water. Some other areas of worry are... L-3-1

A1 - 1: Grout Rather then worrying about fully emptying the tanks, could only sufficient material, likely LLW, be removed so the tanks could be grout-filled with much of the HLW in place? Not only would this require processing less of the waste products, but would prevent the collapse of the tanks as mentioned as a problem in the No Action proposition. However, how dangerous the remaining structures radioactivity would be was not discussed in the text, especially as regard to the heat buildup within the tanks, should this in-place method be used. L-3-2

A1 - 2 Will the grout contain a neutron modifier as part of its composition to help limit possible radioactive processes that will continue in wastes that are left in the tanks? Also, does the grout have an expansion factor as it hardens? If not, will it settle allowing the tank to crack wherever the grout has pulled away from the wall? If so, could the expansion factor exert enough pressure to crack the tank or push existing defects apart even as the grout fills them? L-3-3

A1 - 3 The heat generation of the grout was discussed in regards to it hardening without layers, but will the residual heat in the materials coating the wall (or the walls themselves) be sufficient to set-up the grout touching the walls quicker than the rest of the mass, thus forming layers which would diminish the overall strength of the structure? L-3-4

A1 - 4 Rather than use "new" water, once the water from the tanks is treated, can it not be mixed with the grout thus preventing the tank water from being released into the environment? And would the water have to be as cleaned as much if it was planned to be reused in this manner? Would one holding tank to hold the water from existing tanks until it can be used be enough or would there have to be many tanks due to multiple cleaning projects? L-3-5

A2 -1 Water (also see A1 - 4) The evaporators generate a lot of pressure in the system prior to filtering the mist so could this cause an explosion? What is the heat source for these units and will their failure to continue to evaporate (such as in an accident) cause the radioactive material in suspension to fall back over the equipment thus rendering it useless? How micro-fine are the filters as the smaller the "mesh", the quicker the holes become plugged, and will these HEPA filters become HLW? L-3-6

A2 - 2 As direct boring to water supplies in the aquifer could contaminate them via reverse pressure or other accidents, what precautions are being taken to protect this direct link? Equally importantly, should drought conditions continue, will the removal of millions of gallons of ground water create sink holes that could undermine the tanks? L-3-7

A3 - 1: Cleaning In the tanks, under the pump-able fluids and surreys, the materials coating the walls may be a sludge or solid mass due to the heat and pressure generated by the wastes, and normal settling factors in an gravity field.. Has there been any wall scrapings or cores taken to determine how thick the settled materials are? L-3-8

A3 -2 As water is removed and cleaned, some of it will remain radioactive. Has anyone suggested using electric currents to separate the molecules of the water into their component atoms, which if then processed through gaseous diffusion, could separate out the abnormal atoms that contain extra mass prior to the now-gaseous materials release? L-3-9

A3 - 3 The chemicals to be used for cleaning are to be adjusted so they will not directly react with the linings of the tanks, however, as the tank walls have been in contact with radioactive materials over a long period, are tests planed to see if the composition of the surface (or deeper) layers of the stainless steel walls has changed and will be able to resist the chemicals and/or pressure effects from the spray itself? (A degrading of metals used in nuclear reactors, in a similar environment with heat, radiation, and pressure, often renders the metals brittle or otherwise susceptible to failure.) Under the assumption the walls will withstand cleaning, the contaminated materials coating them may peel away from the walls interface layer (as the solution undermines the contaminates) in large masses. Can the filtration system and pumping pipes handle chunks and plates of the waste material without blockages? Can the cleaning materials themselves be cleaned and used in more than one tank or will the acidic action dissolve the contaminates so the wastes are locked in the cleaning agents? L-3-10

A4 -1: Cooling Many tanks have, and so are presumed to need, cooling units. As the fluid is withdrawn for processing, will the temperature in the tanks so equipped become dangerously high? Indeed, as the circulation fluid grows less, will the cooling system become permanently inoperative? How high will the temperature in these tanks rise and will this reach a level which would boil water thus increasing tank pressure or create the need for atmospheric releases that may not be treated first? L-3-11

B - LONG TERM STORAGE

If the first tanks were left empty after processing, subsequent tanks could be cut up and stored within these repository tanks before grout is poured in them.. This would limit the number of sites left as well as provide a volume reduction in the total capacity of all the tanks. L-3-12

C - BIOLOGICAL:

Viruses have simple genetic structures and mutate rather easily, as demonstrated by the swamps in Canada which have been shown to be the breeding ground of diseases that are carried world-wide by nesting birds. Has there been any tests to see if SRS, with all the possible radiation sources, could be a similar breeding area? Are fish, fowl, and animals taken within or that exit the SRS grounds safely consumable for humans? L-3-13

D - GEOPHYSICAL

D1 - 1: Atmosphere: The prevailing winds of the coastal plain in the area of SRS is toward the east and the ocean, however, a weather condition called "the wedge" seems to be a more current phenomena then in the recent past. This condition occurs when a high pressure system in New England forces surface winds down the eastern slope of the Appalachians toward Atlanta. Are monitoring stations setup to monitor possible atmospheric radionuclides releases that travel in directions other than are considered norm and for what distance? The possibility of a tornado hitting SRS was considered very low in the text, as was hurricane damage, however, as tornados are often spawned by hurricanes, have these weather problems been considered as a unit situation rather than always separately? L-3-14

D2: Earthquakes Although this topic was touched upon in the text, much of the true picture of this problem was ignored. The eastern half of the USA, due to the subsurface structure, has a tendency for even minor quakes to travel to distant points, unlike the Pacific coast where major quakes affect relatively limited areas. The last 100-year quake (now overdue) near Charleston, SC rang church bells in Atlanta, and the last major New Madrid fault (Kansas) quake broke walls in Atlanta. Due to these conditions, the odds of a major quake anywhere from Eastern Canada to the Mississippi River to the Gulf Coast could cause destruction at SRS, especially with the unstable upper land structures of clay and dirt over bedrock as found at SRS. This issue deserves much more consideration to prevent accidents during critical operations. Recently, the collapse of the Atlantic submerged coastal plain wall, along the junction of it with the deeper ocean depths, is suspected to create massive land slides that could trigger seismic events, and has been determined to be a greater threat than previously thought. Has this potential problem been calculated for its affects on SRS? L-3-15

D3: Ocean: With the greenhouse effect now somewhat shown to be affecting the polar caps, not to mention the other changes possible, the submersion of coastal lands may bring the waters within miles of SRS if not covering parts of SRS altogether sometime in the not-so-distant future. Due to this, the 10,000-year proposed safety by current plans is nowhere near long enough. In whatever form the tanks are left, sealing the structures with liquid glass and then coating them with concrete into giant heavily shielded egg-shaped structures may prove reasonably safe for may more years. L-3-16

EXPECTATIONS

First, clean and process all LLW + HLW from above grade tanks that are in the best condition. Keeping temperatures from raising in the tanks without introducing materials that would stabilize the temperature without damaging the tanks may be difficult. Presuming the tanks are easily cleanable, removing the presumed coatings on the inner walls of the tanks should be treated off-site and placed in glass for repositories. This combined product could then be replaced in the tanks for long term storage. If the coating proves as difficult to remove as the temperatures and pressures seem likely to have caused, the coating should be left in place rather than risk damage to the tank walls. These walls then should be coated with liquid glass materials to completely seal them before anything else is placed in the tanks. L-3-17

Tanks below grade should be decommissioned next and after processing, these tanks should be disassembled and the first tanks used as repositories for them. After all possible materials are loosely stored in a tank, it should be filled with grout that contains a neutron modifier and that is mixed with LLW waster - presuming the possible expansion and temperature rise of a grout can be introduced that will not adversely effect the tanks. L-3-17

After this, the tanks need to be steel reenforced all over, including the lower surfaces, and then mounds of concrete be poured all over the remaining structures, including tunnels to coat the lower surfaces. These mega-mounds would keep water from all sources from penetration as well as making 25,000 year storage facilities that could resist major earth shifts, being covered by oceans, or other local major factors. New submergence of earth masses, space related collusions, and such planet wide catastrophes are capable of causing destructions at such a level that radioactive areas and storage will be the least of humanity's problems and are beyond coping with at our current level of technology.. L-3-18

CLOSING

Thank you for the opportunity to comment of a problem that is a long way from being solved. Because of my schedule in the close of the year, I was unable to devote the time I wished to the text, and due to frequent interruptions, some of the points I have raised may have been addressed, however, I hope those situations were few if at all. I look forward to hearing the results of the public comments and if any of my questions and the like prove useful.

Response to comment L-3-1: Comment noted.

Response to comment L-3-2: The waste is somewhat homogeneous during waste removal operations and is not amenable to segregation. Therefore, DOE cannot consider selectively removing only some of the residual waste. Heat of hydration would be managed during grout placement. Upon completion of grout placement heat of hydration would not be an issue.

Response to comment L-3-3: The grout would not be formulated to contain a neutron modifier. Concentrations in the waste are at levels that criticality should not be a concern though it is evaluated. Minimal shrinkage and cracking is expected but is not anticipated to have adverse effects on the tank wall.

Response to comment L-3-4: The residual decay heat from any residual material on the tank wall would be insignificant and would not impact grout placement or strength.

Response to comment L-3-5: Contaminated water would be reused during the tank waste slurry and waste removal activities. It may be necessary to process the water through existing evaporators to maintain adequate tank space and reduce the risk of leaks to the environment until the grout is placed in the tank. Additional storage/holding tanks would not be needed. Any water released to the environment must satisfy strict permit requirements and criteria.

Response to comment L-3-6: Operation of the HLW evaporators is outside the scope of the EIS. This type of information is addressed in the Safety Analysis Report for the tank farms, which is referenced in Appendix B of the EIS.

Response to comment L-3-7: Production wells are placed into the deep aquifers of Cretaceous age in locations away from known contaminant plumes. The deep aquifer and the upper aquifers are isolated by the thick Meyers Branch Confining system. This same hydrologic isolation along with the great thickness of the Cretaceous aquifer limits the impact of water withdrawal from the deep aquifer on the shallow aquifers and sediments, which would ensure that the integrity of the tanks is not compromised (i.e., sinkholes would not be created).

Response to comment L-3-8: Samples of the residual material in the tanks are collected and analyzed to characterize the waste residuals. SRS would use camera inspections of the interior surfaces of the tanks to verify that the tank walls are clean. In the two tanks that DOE closed (Tanks 17 and 20), the residual material was about one-half to one-inch thick.

Response to comment L-3-9: The water generated from tank cleaning activities is managed as HLW (e.g., sent through evaporators for volume reduction). Treatment of the high level waste is outside the scope of this EIS (see DOE/EIS-0082S, DOE/EIS-0082S-2, and DOE/EIS-0217). This EIS addresses stabilizing the tank and remaining residual material after removal of as much of the residual waste as possible.

Response to comment L-3-10: As noted in Section 2.1, DOE selected oxalic acid as the preferred chemical cleaning agent after examining several cleaning agents that would not aggressively attack carbon steel and would be compatible with HLW processes. These studies included tests with waste simulants and also actual Tank 16 sludge. In tanks for which DOE has performed spray water washing, DOE has not noted any negative effects from the pressure of the water washing. The waste removal equipment would be designed to be robust enough to remove the waste in each particular tank. If situations arise such that blockages occur, then steps would be taken to remedy the situation. Typically waste removal equipment would remain in the tank. DOE would recycle tank cleaning materials to the maximum extent practicable.

Response to comment L-3-11: Waste and tank temperatures would be monitored and managed during waste removal from the tank to prevent abnormal emissions from the tank. The tank cooling system would be isolated within the tank following waste removal and the cooling coils would be filled/entombed with grout. Temperature and pressure within the tank would

be managed during grout placement (using a ventilation system).

Response to comment L-3-12: Cutting up and storing tanks within other tanks would not be allowable under the current operating permit for the tanks. However, the EIS analyzes two alternatives that include aspects of the alternative proposed in the comment. The Clean and Remove Tanks Alternative includes the cutting and removal of the tanks while the Fill with Saltstone Option of the Stabilize Tanks Alternative includes the disposal of waste in the closed HLW tanks. As shown in the EIS, the radiation dose received by SRS workers performing the tank removal activities under the Remove Tanks Alternative would be substantially higher than for any of the other alternatives analyzed in the EIS.

Response to comment L-3-13: There have been no tests for viruses in birds nesting at SRS. A radionuclide monitoring surveillance program is in place to monitor animals that are taken offsite for consumption (primarily deer and feral hogs). Any animals that exceed the DOE radioactivity limit would be confiscated.

Response to comment L-3-14: Thirteen radionuclide air surveillance stations are continuously monitored at SRS. There are 12 stations located around the site perimeter and one station located between F and H areas. Releases resulting from tank closure activities would be adequately characterized from information from these monitoring stations. As discussed in Section B.2.2 of the EIS, the consequences from postulated accidents were assessed using average measured meteorological values for the Savannah River Site.

The postulated accidents analyzed in Appendix B include consideration of a tornado as an initiating event. Since the wind velocity during a tornado would be larger than a hurricane, its impacts would bound those from a hurricane. The changes in accident frequency if hurricane initiated tornadoes were also included would be so small that it would not alter the conclusions in the EIS.

Response to comment L-3-15: The probable consequences of an earthquake are assessed as part of the accident analysis in Appendix B. Additional information and analysis are found in the Safety Analysis Report for the tank farms.

Response to comment L-3-16: The accuracy of projections decreases with the length of the projection into the future. The value of projecting beyond 10,000 years is low. The 10,000-year period of analysis was selected to conform to relevant regulatory guidance. Current projections of a sea level rise associated with greenhouse warming do not indicate a potential for submergence of the SRS area.

Response to comment L-3-17: Waste removed from the tanks will be treated at DWPF. The walls would be cleaned and verified by visual inspections using cameras. All HLW tanks are below grade. DOE does not believe that coating the interior tank walls with liquid glass material as suggested in the comment is technically practicable, nor would its use be necessary for the closed HLW tanks to meet the performance objectives. See response to comment L-3-12 regarding the use of tanks to dispose of structural material scrap from other tanks.

Response to comment L-3-18: As discussed in Section A.4.5 of the EIS, decisions regarding the need for a cap over the closed HLW tanks would be made as part of the Environmental Restoration Program.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

February 6, 2001

4EAD

Rec.
FEB 12 2001

Mr. Andrew R. Grainger, NEPA Compliance Officer
U.S. Department of Energy
Building 742 A, Room 183
Aiken, SC 29802
ATTN: Tank Closure EIS

RE: EPA Review of
Draft Environmental Impact Statement (DEIS) for
High-Level Waste Tank Closure (DOE/EIS-0303D)
CEQ No. 000401

Dear Mr. Grainger:

Thank you for submitting the above-referenced Draft Environmental Impact Statement (DEIS) for our review. Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) reviewed the subject DEIS. The document provides information to educate the public regarding general and project-specific environmental impacts and analysis procedures. The purpose of this letter is to provide you with our comments on the project, based on our review of the document.

Overall, the document is detailed and clearly written. EPA evaluated the information in the DEIS, with regard to potential impacts of the proposed mission to close additional high-level waste (HLW) tanks at the Savannah River Site near Aiken, South Carolina. Alternatives presented in the DEIS include the following: (1) Clean and stabilize the tanks; (2) Clean and remove the tanks; and the (3) No Action Alternative. Under the Clean and Stabilize the tanks alternative, DOE is considering three options for tank stabilization: Fill with grout (preferred alternative); fill with sand; and fill with saltstone. As a result of this review, our comments regarding potential project impacts are attached.

Based on our review, the DEIS received a rating of "EC-2," that is, there are environmental concerns, and more information is needed to clarify the potential impacts. Our concerns focus on how all the project elements will ultimately function together, and the number of refinements that will be necessary to accomplish all the desired purposes. In particular, clarification of potential impacts, tank closure procedures, and schedule for tank closure warrant further discussion in the Final EIS. L-4-1

Please note that, while we are fully supportive of the overall goals of the project, we are concerned that the preferred alternative has long-term ramifications which will prevent redevelopment of the land at a later date. However, in order to make the land available for future use or redevelopment, the tanks would need to be removed and disposed of at an appropriate facility off-site. We realize that, at the current time, safety issues, cost and transportation issues, and disposal issues prevent this from being a viable alternative. L-4-2

Conversely, filling the tanks with grout will make their removal more difficult in the future, when this land could be needed for redevelopment, and removal of the tanks may be more feasible and desirable. At a minimum, the current project should include an interim plan for removing the tanks to an appropriate alternate location, such as a high level waste repository, if Maximum Contaminant Levels (MCLs) of radionuclides are exceeded by a predetermined amount. L-4-3

As additional details become available, they should be shared with the involved parties. A list of information which we believe would help clarify the document is attached. We appreciate the opportunity to review this project. If you have any questions or require technical assistance, you may contact Ramona McConney of my staff at (404)562-9615.

Sincerely,

Heinz J. Mueller, Chief
Office of Environmental Assessment

EPA Comments on
Draft Environmental Impact Statement (DEIS) for
High-Level Waste Tank Closure (DOE/EIS-0303D)

1. Page 2-4, Column 1, Tank Stabilization, 1st paragraph, 7th line: text states that each tank would be filled with a self-leveling material. Sand, in the sand fill option, is not self-leveling. Please clarify. L-4-4

2. Page 2-5, Column 1, 3rd section, 1st line: text states that the amount of saltstone required would exceed 160 million gallons. Page A-19, Column 2, 1st line mentions saltstone made would be greater than 160 million gallons. If the amount required to fill the tanks and the amount planned to be made exceeds tank capacity, then requirements should be reconsidered. L-4-5

3. Page 2-7, Column 1, 3rd line from top: this section compares the number of workers under the No Action alternative with only one of the other alternatives, the Stabilize Tank alternative, leaving out the Tank Removal alternative comparison. L-4-6

4. Page 2-11, Table 2-2, Saltstone Option for Particulate Matter and Carbon Monoxide: values in this chart 1.7 and 8.0 do not match the Table S-2 values of 3.6 and 16.0 in the Executive Summary, page S-19. L-4-7

5. Page 4-16, Column 2, 2nd section, 1st line: the text references the post-closure activities in Table 4.1.8-2. Table 4.1.8-2 on page 4-18 does not mention post-closure activities impacts to workers. The text on page 4-16 states that the collective dose of the other alternatives is less than the No Action alternative. Table 4.1.8-2 does not show this (if the reference is to footnote "d", even 1.2 mrem/year x 1000 years is still less than the other alternatives). Please clarify. L-4-8

6. Page 5-3, Column 1, CEQ Cumulative Effects Guidance, 3rd section, last line: text mentions five identified resources of concern. This does not match the paragraph above which lists six areas (see numbered resources in CEQ Cumulative Effects Guidance, 2nd section, lines 6-9). L-4-9

7. Page 6-1, Column 1, line 14: text mentions minimal short-term adverse impact to cultural resources. However, chapter 4, page 4-14 does not list any further cultural resources being impacted by any of the alternatives. See page 4-14, Column 1, 1st section, last line and Column 1, 2nd section, last line. L-4-10

8. Page C-7, Column 1,1st section, line 14: letter 'n' stands alone. Typo? L-4-11

9. Page S-1, Column 2, section S.1, 2nd to last sentence: text mentions 'issues that remain to be resolved,' but this is not separately addressed in the Executive Summary (as listed). If it is included within other sections, a separate breakout of pending actions and/or outstanding issues (i.e. pending EIS's and Environmental Restoration Programs) would help the reader. L-4-12

10. Page S-2, Column 1, 3rd section, 4th line: The text mentions a geologic repository but no estimated time frame for approval of the geologic repository is given. This may give the reader a misleading L-4-13

impression of the disposal process. A mention of this issue earlier in the text, (along with page S-2 information), or in a separate section of unresolved issues, (see #1 above), would help. L-4-13

11. Page S-2, Column 2, 1st section, 8th line: DOE is preparing an EIS for the HLW Salt Disposition procedure. However, there is no mention of potential impact(s), if any, if the proposed action gets approved. L-4-14

12. Pages S19-S20, Table S-2 & page 2-11, Table 2-2: Please explain why cost is not included in these charts (cost is mentioned on page S-18, Column 2 last section, lines 3-5; page 2-6, Column 2, last section, 3rd to last sentence; and page 2-9, Column 2). L-4-15

13. Page 3-45, Column 2, last section, first line: DOE committed to close 24 tanks by 2022 (leaving 25 tanks for the next 8 years). Please show a schedule of closure plans in the Final EIS. L-4-16

14. Page 4-25, Column 2, 3rd line: 'the tank closure plan may need to be extended if the salt disposition process start-up is delayed'. Please show a schedule, and issues to be resolved, that may impact the tank closure. L-4-17

15. Page C-4, Column 1, last section, line 4: Please show a graphic depiction of the model mentioned in this section, which delineates the referenced zones. L-4-18

16. Page C-3, Column 2, last section, last two lines: Please explain why tanks (under all alternatives) are not capped to prevent water from entering, thus allowing contaminants to spread out. With the understanding that engineered caps may be a major undertaking (page S-25, Column 2, 2nd section, line 14 and page C-1, Column 1, 2nd section, line 9), it is still not apparent why a simple impermeable layer was not considered to help keep water out of the tanks. If there is a reason why the top of the tanks cannot be sealed, please explain this. L-4-19

17. Page S-24, Column 1, 2nd section, lines 4-7: The text states the probability of limited contamination under the No Action Alternative, but on same page, Column 2, 1st section, line 3-4, it states that contamination would be very large under the No Action alternative. Please clarify. L-4-20

18. Page S-24, Column 1, 2nd section, lines 4-6: The text states there would be limited movement of contaminants to groundwater under the No Action alternative (long-term). This does not match page 2-7, Column 1, section 2, lines 5-7, which states that movement of contaminants would be rapid under the No Action alternative. If time is the factor, then compare each to page S-18, Column 1, last section, which states the No Action alternative has the least impact in the short term. L-4-21

19. Page 2-19, Column 2, 2nd section, lines 6-9: text states all options are better than the No Action alternative for contamination into groundwater. Page S-24, Column 1, 2nd section lists the No Action alternative as 'limited movement', grout option as 'almost no' movement and 'intermediate amount' under the sand and saltstone alternatives. Please clarify. L-4-22

20. Page 2-10, Column 1, last section, lines 17-19: text mentions each alternative, and includes oxalic acid cleaning (which is only to be used "if needed"). Page 4-24, Column 2, 1st line mentions the L-4-23

oxalic acid cleaning solutions from all the alternatives (again, not a part of all cleaning options if hot water rinse is sufficient). Page 6-3, Column 2, 2nd section, lines 16-19: text again mentions oxalic acid cleaning for each alternative. Please add modifying text to each of these places to show oxalic acid will be used only as needed (still not an approved option). L-4-23

21. Page C-3, Column 1, last section, 1st line: Please clarify whether the Clean and Remove alternative would also potentially expose individuals, via the atmospheric pathway from the tank area, during destruction. L-4-24

22. Page C-6, Column 2, middle (inhalation of contaminated soils from banks of streams): if this pathway is feasible for the residents, then why couldn't we assume the same for the workers? Page C-3, Column 1, middle, states that exposure from inhalation of suspended soils was not evaluated. This appears to be the same pathway. L-4-25

23. Page C-10, Figure C-2, Terrestrial Wildlife Column: When eating, the animals selected could also ingest sediment as well as soils. As a result, clarification is needed on page C-11, Column 2, last section regarding exposure routes. L-4-26

24. Page D-3, Column 2, subsistence sportsmen: Fish consumption for residents is addressed, but please clarify the source of the data regarding the amount of fish consumed. Are warning signs posted as Institutional Controls? L-4-27